HARPEROCALLIS, A NEW GENUS OF THE LILIACEAE FROM FLORIDA

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AS A RESULT primarily of the botanical explorations of A. W. Chapman, the area around the Apalachicola River in western Florida is known for its endemism and for its exceptional variety of plant species. Approximately fourteen well-defined species are restricted to this immediate area. Other species such as *Baptisia megacarpa* Chapm., *B. simplicifolia* Croom, *Gentiana pennelliana* Fern., *Hedeoma graveolens* Chapm., and *Hypericum chapmanii* P. Adams are endemic to a wider area of the northeastern Gulf Coastal Plain. Within the Apalachicola River area also occur a number of uncommon, though wide-ranging, species such as *Leitneria floridana* Chapm., *Croomia pauciflora* (Nutt.) Torr., and *Schisandra glabra* (Brickell) Rehd. The variety of habitat within the area is exceptional and ranges from alluvial river bottom to sandy longleaf pine forests or to *Sarracenia* bogs. The diversity within the Apalachicola River area both of species and habitat and the known endemism within the area help to explain a previously undescribed, apparently endemic genus of the Liliaceae which has been discovered in Franklin County, Florida.

The relationships of *Harperocallis*, the remarkable new genus described below, seem to be with the tribe Tofieldieae Kunth of the Liliaceae. This tribe as circumscribed by Krause (1930) consists of *Tofieldia* Hudson, *Pleea* Michx., *Narthecium* Hudson, and *Nietneria* Klotzsch & Schomb. Bentham and Hooker (1883) and Hutchinson (1959) delimited the Narthecieae Benth. & Hook. (synonymous with the Tofieldieae in the sense here used) to include the genera listed above and several others morphologically more divergent. *Harperocallis* is markedly distinct from all other genera of this tribe and may be distinguished readily by its solitary flower, tuberculate ovary, and calyculus of three (or four) separate bracts.

The members of the Tofieldieae, including *Harperocallis*, are all rhizomatous perennials, with linear, mostly basal equitant leaves and terminal inflorescences on simple stems. The leaves of *Harperocallis* are almost identical to those of *Narthecium* and certain species of *Tofieldia*. The simple stem has a few reduced bractlike leaves above and one or more sheathing leaves near the base. A calyculus of three or four bracts is immediately beneath the solitary terminal flower. Flowers of certain species of *Tofieldia* may have a calyculus, but the segments are united. In *Pleea* each individual flower is subtended by a large sheathing bract. *Narthecium* and *Nietneria* have single bracts subtending the individual flowers along the axis of the inflorescence. The stamens are six in all

Tofieldieae, except *Pleea* where they may be six to twelve but most commonly are nine. Except for the pilose filaments of *Narthecium* the filaments are glabrous. In the Tofieldieae the ovary is trilocular and often three lobed. The styles are distinct and suberect or slightly recurved in *Pleea*, *Tofieldia*, and *Harperocallis*. In *Narthecium* and *Nietneria* the styles are united and erect. The capsule in *Harperocallis* as in *Narthecium* and *Nietneria* is loculicidal. *Pleea* and *Tofieldia* have septicidal capsules.

The unique morphological characteristics of *Harperocallis* and the various morphological features held in common with different genera of the Tofieldieae suggest no particularly close relationship with any other genus. The presence of the calyculus and other morphological similarities suggest closest affinity to be with *Tofieldia*.

At the type locality *Harperocallis* is most frequent in the vicinity of isolated individuals of *Cliftonia monophylla* (Lam.) Britt. ex Sarg. and *Myrica inodora* Bartr. in areas slightly drier than the adjacent open bog. Within the bog *Harperocallis* is less frequent and is associated most prominently with *Sarracenia flava* L., *S. psittacina* Michx., and *Pleea tenuifolia* Michx. On the edge of the bog *Harperocallis* was noted growing in the detritus of an old pine log beneath *Cliftonia*. The open bog abruptly changes to the west to a dense thicket largely consisting of *Cliftonia* and an occasional individual of *Pinus serotina*. The whole area is surrounded by sandy, occasionally burned longleaf pine woods. Initially a few individuals of *Harperocallis flava* were observed in a roadside ditch slightly to the south of the type locality.

Although as earlier mentioned the Apalachicola River region is noted for its endemic species of plants, there are no previously described endemic genera. I have examined numerous areas from the vicinity of Tallahassee to extreme western Florida seemingly quite similar to the type locality without finding any sign of *Harperocallis*. Probably, however, the genus occurs elsewhere, for other endemics of the Apalachicola River area, such as *Rhexia parviflora* Chapm. and *Scutellaria floridana* Chapm., occur sporadically within the region. *Harperocallis* may eventually prove to have a similar type of distribution.

It is appropriate to associate with this genus of the Lower South the name of Roland MacMillan Harper (1878–1966) who greatly contributed to an understanding of the vegetation of this area. The latter portion of the generic name emphasizes the attractiveness of the flower. The specific epithet refers to the color of the perianth segments.

Harperocallis McDaniel, gen. nov.

LILIACEAE-MELANTHOIDEAE-TOFIELDIEAE

Herba perennis. Rhizoma gracile nodosum, saepe terminante in planta emergenti. Folia equitantia, lineares, rigidula, striata, quam flos multo breviora. Inflorescentia constans ex flore solitario et erecto. Bracteae subflore 3 vel 4, persistentes, plus minusve aequales, contiguae, deltoideae, apice acutae. Perianthium persistens, flavum interne et patentia per

FIG. 1. *Harperocallis flava*, × 2/3.

anthesin; segmenta 6, distincta, oblanceolata, acuta, hae subtentae a bracteae intimis segmentis longiora. Stamina 6, hypogyna, quam perianthium breviora; antherae lineari-lanceolatae, basifixae, loculis introrse dehiscentibus, filamentae glabrae, sensim latae basin versus. Ovarium sessile, trilobum, triloculare, ellipsoideum, valde tuberculatum, ovula in loculis numerosa; styli 3, suberecti, breves; stigmata capitata. Capsula vix maior quam ovarium per anthesin, triloba, ellipsoidea, loculicide dehiscens. Semina parva, anguste fusiformia, recta vel curvata. SPECIES TYPICUS: *Harperocallis flava.*

Harperocallis flava McDaniel, sp. nov.

Herba glabra, prope basin fibrillosa. Caulis simplex, 22–55 cm. longus. Folia 0.2–0.3 cm. lata × 5–21.5 cm. longa. Segmenta perianthii 10–12 nervata, hae subtentae a bracteis 12–15 mm. longa, segmenta interiora 9–12 mm. longa. Stamina 8–9 mm. longa. Ovarium 7–8.5 mm. longum. Capsula 8–9 mm. longa. Semina 2–3 mm. longa. HOLOTYPUS: *McDaniel 6205* (A)

Perennial herb, glabrous throughout, basally fibrillose. Rhizome slender, nodose with scarious scale leaves, often ending in an emergent plant. Leaves 0.2–0.3 cm. wide × 5–21.5 cm. long at maturity, equitant, linear, stiff, and striate, much exceeded by the scape; sheath scarious margined. Stem simple, 22–55 cm. long, with 3–5 much reduced leaves. Bracts 2–3 mm. long, persistent, usually 3 in number, contiguous, deltoid, forming a calyculus beneath the flower. Perianth persistent, yellow above and greenish beneath at anthesis, spreading, after anthesis becoming erect, revolute, externally green and internally purple margined; perianth segments 6, 10–12 nerved, oblanceolate, acute, those subtended by the bracts 12–15 mm. long, the inner series 9–12 mm. long. Stamens 6, 8–9 mm. long, hypogynous; anthers ca. 4 mm. long, linear-lanceolate, basifixed, introrsely longitudinally dehiscent, filaments glabrous, somewhat broadened toward the base. Ovary 7–8.5 mm. long, sessile, 3-lobed, 3-locular, ellipsoid, strongly tuberculate, ovules numerous; styles 3, suberect, ca. 1 mm. long, stigmas capitate. Capsule 8–9 mm. long, ellipsoid, loculicidal, tuberculate, almost hidden by the perianth. Seeds 2–3 mm. long, pale yellow, narrowly fusiform, straight or curved, often twisted.

SPECIMENS EXAMINED: **Florida.** FRANKLIN CO.: 2.2 mi. south of Sumatra, open bog surrounded by *Cliftonia-Pinus serotina*, May 11, 1965, *McDaniel 6205* (holotype, A; isotypes, BM, DUKE, FLAS, FSU, GA, MO, NCU, NY, PH, SMU, US), July 21, 1965, *McDaniel 6542* (A, FSU); 2.5 mi. south of Sumatra, roadside near pine woods, May 4, 1965, *McDaniel 6127* (FSU).

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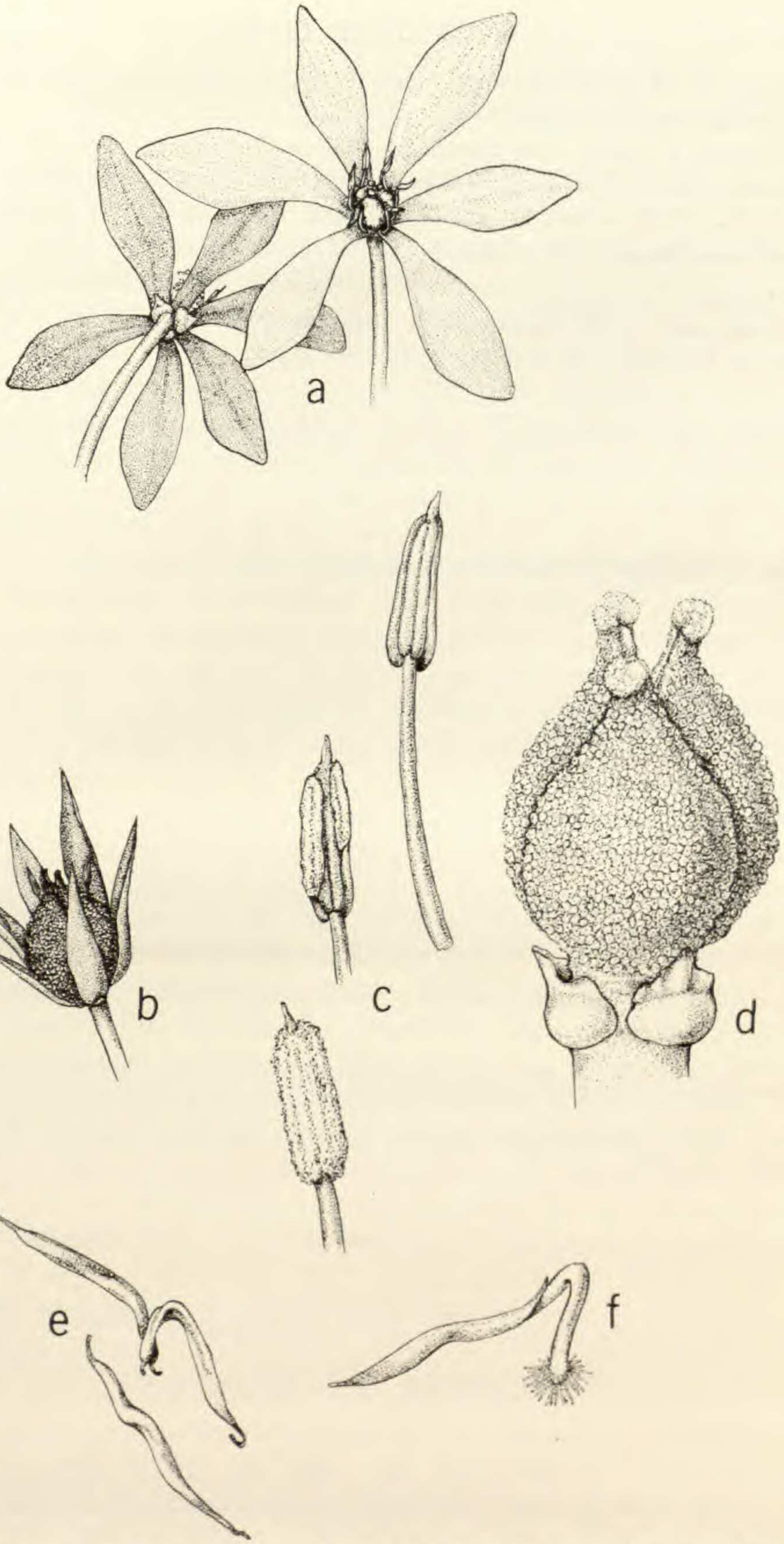

FIG. 2. *Harperocallis flava*: a, flower from below and above, × 2½; b, fruit, × 2½; c, anthers, showing dehiscence, × 6; d, ovary and calyculus, × 6; e, seeds, × 6; f, germinating seed with corona of root hairs at base of hypocotyl, × 12.

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